

ABSTRACT

A metal-insulator-metal (MIM) capacitor using a high-k dielectric and method of fabrication are described. After forming node contacts to the substrate a patterned stacked layer comprised of a first metal layer, an insulating dummy layer, and a second metal layer is formed over the node contacts. Sidewall spacers are formed from a third metal layer to complete the lower electrode. A thin high-k dielectric film is deposited. A patterned fourth metal layer is used as the upper electrode to complete the MIM capacitor. The patterned insulating dummy layer acts as a template for making the capacitor without partaking in the electrical properties of the capacitor. The height of the dummy layer is used to fine-tune the capacitance for the circuit requirements. The dummy layer is not an active part of the circuit. The dummy layer does not react with the metals, barrier layers are not required, reducing process complexity.